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AUTHOR Erdahl, Paul; Rounds, James B.
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ABSTRACT

The Nuclear Locus of Control (NLOC) scales were constructed to assess beliefs as to whether nuclear war and nuclear policy decisions are, or can be, influenced by oneself, powerful others, or chance. Three scales measuring internal, powerful others, and chance nuclear LOC show internal consistency estimates (Cronbach's Alpha) of .87, .76, and .85, respectively. Test-retest coefficients for 4 weeks were .85 (internal), .86 (powerful others), and .78 (chance). An initial validity study examined the relationships of the NLOC scales with Levenson's generalized LOC scales, and Multidimensional Health Locus of Control scales. With the exception of the correlation between the NLOC internal and Levenson's internal scale, results showed an expected pattern of relationships suggesting that general internal LOC may not be related to beliefs of personal control over nuclear war issues. Evidence of construct validity was provided by correlating the NLOC scales with measures of behavioral intentions and self-reported past behaviors. The eight-item Nuclear Likelihood Questionnaire (NLQ) asks for percentage estimates of the likelihood of nuclear war. Ninety respondents completed the NLQ measure 1 week before and 2 weeks after the Reagan-Gorbachev 1985 Summit. Mean estimates of the likelihood of nuclear war ranged from 2-3% for "the next week" to 42-44% for within one's "lifetime." Results indicated that likelihood estimates were affected by the Summit and that women's estimates of nuclear war likelihood were significantly higher than those of men at time frames of 10 years and beyond. (Author/NB)

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Locus of Control and Likelihood of Nuclear War: Two Studies

Paul Erdahl and James B. Rounds

The State University of New York at Buffalo

CG019606

Address correspondence to: Paul Erdahl
409 Baldy Hall
State University of
New York at Buffalo
Buffalo, New York 14260

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Abstract

The development of the Nuclear Locus of Control scales (NLOC) and Nuclear Likelihood Questionnaire (NLQ) are described. The NLOC scales were constructed to assess beliefs as to whether nuclear war and nuclear policy decisions are, or can be, influenced by oneself, powerful others, or chance. Three scales measuring internal, powerful others, and chance nuclear LOC show internal consistency estimates (Cronbach's Alpha) of .87, .76, and .85, respectively. Test-retest coefficients for four weeks were .85 (internal), .86 (powerful others), and .78 (chance). An initial validity study examined the relationships of the NLOC scales with Levenson's generalized LOC scales, and Multidimensional Health Locus of Control scales. With the exception of the correlation between the NLOC internal and Levenson's internal scale, results showed an expected pattern of relationships suggesting that general internal LOC may not be related to beliefs of personal control or influence over issues of nuclear war. Evidence of construct validity was provided by correlating the NLOC scales with measures of behavioral intentions and self-reported past behaviors. The eight-item NLQ asks for percentage estimates of the likelihood of nuclear war. Ninety respondents completed the NLQ measure one week before and two weeks after the Reagan-Gorbachev 1985 Summit. Overall, mean estimates of the likelihood of nuclear war ranged from 2-3% for "the next week" to 42-44% for within one's "lifetime." Interpretation of MANOVA and univariate results indicated that likelihood estimates were affected by the Summit and that women's estimates of nuclear war likelihood were significantly higher than those of men at time frames of 10 years and beyond.

Locus of Control and Likelihood of Nuclear War: Two Studies

While many recent studies have assessed attitudes about nuclear war, nuclear weapons, and nuclear policies (e.g. Beardslee & Mack, 1983; Doctor and Goldenring, 1985; Fiske, Pratto, & Pavelchak, 1983; Hamilton et al., 1985; McClenney & Neiss, 1984; Milburn, Wantabe, & Kramer, 1985; White & Feshbach, 1984; Tyler & McGraw, 1983), the findings have been difficult to compare and integrate due to the variety of methods and measures that have been used. In a review of the literature addressing nuclear issues within the field of psychology, Erdahl (1985) noted that measures used to assess attitudes and related constructs were often of questionable reliability and validity, and that two constructs--locus of control and perceived likelihood--have not yet been adequately defined and operationalized. Locus of control and perceived likelihood of nuclear war have been proposed as important variables in understanding nuclear attitude-behavior relationships (McClenney and Neiss, 1984; Pavelchak & Schofield, 1984; Tyler & McGraw, 1983). Two studies are presented which address these constructs.

A considerable body of literature implicates the perception of causality, or locus of control, as an important mediator of reponses in many situations. Rotter (1966) popularized the construct of locus of control with his development of a 23-item Internal-External (I-E) Control Scale. Rotter's locus of control concept, embedded in his social learning theory, is conceptualized as an expectancy to receive reinforcement either as contingent upon one's own behavior (internal), or as the result of forces beyond one's control (external). Several researchers (McClenney & Neiss, 1984; Tyler & McGraw, 1983) have attempted to measure locus of control with respect to

nuclear issues. For example, Tyler and McGraw (1983) used Rotter's I-E Scale to measure internal control and equated high scores with strong beliefs of personal political efficacy. It seems, however, inappropriate to generalize from beliefs about general control over one's life to beliefs of personal control over the possibility of nuclear war since locus of control varies across different situations (Lefcourt, 1981).

More recent research on the locus of control concept has been directed toward studying the various agents of control and the development of goal-specific measures of locus of control. Levenson (1981, 1973) has argued that while internal locus of control is unidimensiona., external locus of control is multidimensional, consisting of beliefs in fate and chance and of beliefs that other powerful people are in control. As a result, Levenson (1973) developed the I, P, and C Scales which measure internal, powerful others, and chance locus of control. Wallston, Wallston, and DeVellis (1978) used Levenson's locus of control concepts as the basis for the development of their Multidimensional Health Locus of Control (MHLC) scales with three scales measuring internal, powerful others, and chance locus of control over health concerns.

With respect to issues of nuclear war, Erdahl and Rounds (1986) have developed a measure of nuclear locus of control. Since the separation of external control into powerful others and chance seemed especially appropriate to the study of nuclear issues the Nuclear Locus of Control (NLOC) scales were based on Levenson's tripartite model. Scales were developed from a 72-item pool to assess beliefs that control over the possibility of nuclear war and nuclear policy decisions is within one's own control, the control of powerful others, or simply left to chance or fate. Factor analytic procedures lead to

the development of two equivalent 6-item forms for each scale: Internal Nuclear Locus of Control (INLOC), Powerful Others Nuclear Locus of Control (PNLOC), and Chance Nuclear Locus of Control (CNLOC). Items were responded to on a six-point Likert-type format ranging from "strongly disagree" to "strongly agree" with high scores on all scales reflecting high expectations of control for the respective construct, e.g. powerful others. Results showed alpha coefficients for the six-item NLOC scales ranging from .83 to .93.

With two exceptions, the NLOC scales showed an expected pattern of correlations with Levenson's IPC scales. The first exception was that Levenson's I scale did not correlate with the INLOC indicating that generalized internal locus of control is not related to internal nuclear locus of control. The other exception was that the correlations between the INLOC and the PNLOC scales were larger than expected, possibly reflecting the self referent aspect of some PNLOC items. Study 1 attempts (a) to address the larger than expected relationships between the INLOC and PNLOC by revising the PNLOC scales, and (b) to replicate and extend previous work addressing the validity of NLOC scales.

Study 2 presents the development of the Nuclear Likelihood Questionnaire (NLQ), a measure of an individual's estimates of the likelihood of nuclear war. Likelihood estimates about the probability of nuclear war have frequently been used to understand attitudes and behavioral responses to nuclear war issues. The usefulness of measuring perceived likelihood has been demonstrated in studies examining anxiety about nuclear war (Doctor & Goldenring, 1985), behavioral intentions and behavioral commitment in response to the threat of nuclear war (King, 1985; Fiske, Pratto, & Pavelchak, 1983), education (Zweigenhaft, 1984), and arms control opinions (Nelson, 1985).

Furthermore, likelihood estimates show sex and generational differences (Hamilton et al., 1985) and have been found to be affected by media events (Cross & Saxe, 1984).

Methods for measuring the likelihood of nuclear war have involved a variety of different scaling techniques and content. Most scales use one item with a Likert-type format (ranging from "very likely" to "very unlikely") on which subjects are asked to estimate the likelihood of nuclear war within one specific time frame, that is, 5 years, 10 years, or in your lifetime (White & Feshbach, 1984; Milburn, Watanabe & Kramer, 1985; French & VanHorn, 1985; McClenney & Neiss, 1984). Other proposed scales have involved only "yes-no-unsure" responses to likelihood statements (Beardslee & Mack, 1983; Doctor & Goldenring, 1985).

In contrast to the Likert-type scales, percentage estimates of the likelihood of nuclear war have been used in several studies. Hamilton et al. (1985) asked individuals to estimate the probability of nuclear war between the Soviet Union and the United States in the next 10 years on a scale from 0 to 10, with a zero response reflecting a 0% chance of nuclear war and 10 representing a 100% chance of nuclear war. Johnson (1985) asked "what do you believe to be the probability of a nuclear war occuring in this century?" with a response format of "_____ of 100." Similarly, Pavelchak and Schofield (1984) asked, "If U.S. Government policies proceed on their present course, how likely do you think it is that there will be a nuclear war?" and used the following response format: "in the next 2 years? _____%, in the next 10 years? _____%, by the year 2000? _____%"

The NLQ was developed along the same lines as these last three studies. It is designed to elicit free response estimates, in percentages, of how

likely nuclear war is perceived to be within eight different, commonly used time frames. In Study 2, the NLQ was used to assess the effects of the November, 1985 Reagan-Gorbachev Summit Talks on estimates of nuclear war likelihood.

Study 1

Method

New Item Pool. Twelve items for each of the NLOC scales were selected from the original NLOC scales. Twelve new items were written for the powerful others (PNLOC) and the chance (CNLOC) scales creating a total item pool for the present study of 48 items. The new items were written to emphasize the role of powerful others and chance and to avoid the personal references that had existed in earlier items. Items were responded to on a six-point Likert-type format (1 = "strongly disagree," 2 = "mostly disagree," 3 = "disagree more than agree," 4 = "agree more than disagree," 5 = "mostly agree," 6 = "strongly agree"). The total item pool consisted of 12 INLOC items, 21 PNLOC items, and 14 CNLOC items.

Scale Construction. The following criteria for selection of the items composing the INLOC, PNLOC, and CNLOC scales were used: (a) item mean scores within the range of 2.5 to 4.5; (b) distribution of responses on each item; (c) significant item-to-*a priori* scale correlation; (d) significant item loading $>.45$ on its relevant factor and $<.30$ on nonrelevant factors from a three factor solution; and (e) item wording and content. Six items were selected for inclusions in each of the NLOC scales. Total scale scores are simple sums of item responses with a possible range of 6-36 on each scale.

Measures Used for Validation. Expected relationships were examined between the NLOC and two sets of measures. The first set consisted of measures based on Levenson's tripartite model of locus of control: Levenson's (1973) IPC, and Multidimensional Health Locus of Control (MHLC, Wallston, Wallston, and DeVellis, 1978). The IPC scales are composed of a total of 24 items, with eight items per scale, measuring general beliefs of locus of control. The MHLC is composed of three six-item scales developed to assess beliefs about control over one's health: internal (IHLC), powerful others (PHLC), and chance (CHLC). Both measures use Likert-type response formats on which high scores indicate high expectations of control for the respective scale. Low scores demonstrate a tendency not to believe in the respective type of control. The IPC scale scores range from 8 to 48, and the MHLC scale scores range from 6 to 36. It should be noted that low scores on one scale do not necessarily suggest high scores on the other scales. A high score on two of the scales is conceivable; Levenson (1981) reports, however, that this is very rare.

A second set of measures consisted of three questionnaires related to nuclear war issues: Nuclear Intentions Questionnaire (NIQ), Nuclear Likelihood Questionnaire (NLQ), and Nuclear Activism Questionnaire (NAQ, Werner & Roy, 1985). Both the NIQ and NLQ were developed as a part of our current research on behavioral responses to the threat of nuclear war.

The NIQ is designed to assess how likely it is that individuals will perform a variety of behaviors related to nuclear issues. The NIQ was developed from a factor analysis of a 16-item pool reflecting a variety of possible behaviors such as signing petitions, joining organizations, and writing to political representatives. This measure requires responses on a

nine-item bipolar scale which allows individuals to indicate how likely they are to perform specific behaviors supporting either "the continued need for nuclear weapons," or "the need for the reduction of nuclear weapons." Possible responses range from "extremely likely" to "not at all likely." For example, the item "If nuclear issues come up in conversation, I intend to talk about...," can be responded to in either a pro-nuclear direction or an anti-nuclear direction with "not at all likely" representing the middle point of the scale. Items were forced choice in that respondents could not respond with both pro-nuclear and anti-nuclear intentions. In the present study NIQ scores were calculated to reflect anti-nuclear behavior intentions, pro-nuclear behavior intentions, overall intentions to perform any behavior (activism), and bipolar activism measuring both the direction and intensity of intentions. Internal consistency estimates of reliability (coefficient Alpha), based on the current sample for the NIQ scales, range from .88 to .92. Test-retest reliabilities, based on a sample of 35 respondents, ranged from .82 to .94 for a four week time period.

The Nuclear Likelihood Questionnaire (NLQ) was also administered to elicit percentage estimates of how likely respondents believe nuclear war to be in eight different time frames including: next week, next month, next year, next five years, next 10 years, next 25 years, in your lifetime, and ever (beyond your lifetime). The devlopment of this scale is discussed in Study 2.

The NAQ measures self-reported past pro-nuclear and anti-nuclear behaviors. Individuals responded to seven "pro-nuclear" and seven "anti-nuclear" items indicating the number of times they had performed the activity in the past four years, e.g. "Trying to convince a relative that the U.S. should continue to produce and deploy nuclear weapons." Scoring

procedures produce a pro-nuclear acts score, an anti-nuclear acts score, a bipolar activism score (by multiplying responses to the pro-nuclear responses by -1), and an intensity score reflecting the number of activities, pro-nuclear and anti-nuclear, that the individual has performed. Coefficient Alpha for these scales, based on a present sample of 43 respondents, ranged from .67 to .88.

Respondents. Subjects were 106 adults including undergraduate and graduate students at the State University of New York at Buffalo, and at St. Olaf College in Northfield, Minnesota. Students were enrolled in psychology and statistics courses. Slightly over 42% of respondents were male, and the mean age of the sample was approximately 24 years.

Procedure. Respondents were asked "to participate in a study of how attitudes and beliefs about nuclear war and nuclear policy decisions compare to attitudes and beliefs toward other issues in one's life." In a booklet format the NLOC scales were administered in combination with the six measures described above. One hundred and six respondents completed one of two alternative booklets. Form A, administered to 27 subjects, included the NLOC, IPC, NIQ, MC, and NLQ. Form B was completed by 79 participants and included the NLOC, MHLC, NIQ, and NLQ. Retest data for Form B was collected on 35 subjects. The NAQ was administered during the retest.

Results

The NLOC items were correlated and submitted to a principle axis factor anlysis with SMC as communality estimates. Two through five factors were extracted and rotated to a varimax criterion. A three factor solution was selected based on Cattell's scree test. Examination of the factor loadings on

the four factor solution indicated that only two items uniquely defined that factor.

Based on the item selection criteria discussed above, three six-item scales measuring internal, powerful others, and chance nuclear locus of control were developed. The items for these scales, with their respective factor loadings, are presented in Table 1. Comparison of the present set of PNLOC items to the prior PNLOC items (Erdahl & Rounds, 1986) shows that only one item from the previous PNLOC scale was retained. The previous 12-item INLOC and CNLOC scales were reduced to six-item scales.

It was expected that the internal, powerful others, and chance scales of NLOC, would correlate highly with the respective scales of the IPC and MHLC. Correlations, means, standard deviations, and estimates of internal consistency for the NLOC, MHLC, and IPC scales are presented in Table 2. Table 2 shows alpha coefficients for the six-item NLOC scales range from .76 to .87. These alpha coefficients are somewhat higher than the corresponding coefficients for the IPC and MHLC scales. Thirty-five respondents were reassessed after four weeks. The resulting stability coefficients for the INLOC, PNLOC, and CNLOC were .85, .86, and .78, respectively.

Insert Tables 1 and 2 about here.

Overall, the correlation pattern among the internal, powerful others and chance scales for the NLOC is similar to the correlational pattern among the internal, powerful others, and chance scales of the IPC and the MHLC. The INLOC scale was moderately correlated with the PNLOC and CNLOC scales (-.40 and -.35, respectively) but to a lesser degree than in previous work,

suggesting that the present scales measure more clearly defined constructs. The correlation between the PNLOC and the CNLOC shows similar direction and magnitude similar to the correlations between powerful others and chance scales for the IPC and MHLC.

Inspection of the validity diagonals for the NLOC scales indicated satisfactory convergent validity for the CNLOC scale. The PNLOC scale showed the highest correlation with the powerful others scale of the IPC. The PNLOC, however, did not correlate significantly with the PHLC, instead correlating more highly with the CHLC. The INLOC has a moderate relationship with the IHLC; the INLOC does not, however, correlate significantly with Levenson's internal scale.

Correlations of the NLOC with the Nuclear Likelihood Questionnaire, the Nuclear Intentions Questionnaire (NIQ) and the Nuclear Activism Questionnaire (NAQ) are presented in Table 3. The NLOC internal scale shows consistent and significant relationships with the anti-nuclear and bipolar activism scales of the NIQ and NAQ. The highest correlation was between the NLOC internal scale and the Activism scale of the NIQ. In contrast, significant relationships were not found between the NLOC internal scale and measures of pro-nuclear intentions and pro-nuclear past behaviors. One significant correlation was found with the NLOC powerful others scale, suggesting that the more one believes that powerful others are in control of nuclear issues, the less likely it is that one intends to be involved in pro-nuclear activities. Three correlations for the NLOC chance scale are significant and similarly suggest that the more strongly one holds that nuclear issues are a matter of chance, the less likely it is that one intends to respond to these issues, and the less likely it is that one reports anti-nuclear or pro-nuclear past behaviors.

Finally, no significant relationships were found between NLOC scales and estimates of the likelihood of nuclear war.

Insert Table 3 about here

Study 2

Method

Items. The NLQ (Appendix A), an eight-item free response scale, asks for percentage estimates of the likelihood of nuclear war in each of eight time periods: next week, next month, next year, next 5 years, next 10 years, next 25 years, in your lifetime, and ever (beyond your lifetime).

Respondents. The NLQ was completed by 90 undergraduates and graduate students, enrolled in introductory psychology and statistics courses at two colleges in Western New York. Slightly over 46% were male, and the mean age was 27.19 years.

Procedure. The NLQ was administered during the week prior to the November 1985 Summit (Time 1), and readministered three weeks after the Summit (Time 2). Since the means and variances of the likelihood estimates tend to be proportional, a square-root transformation was applied to the percentage scores. A multivariate analysis of variance (MANOVA) repeated measures analysis was conducted with one-between factor (sex) and one-within factor (time) to examine the effects of the Reagan-Gorbachev Summit. The within time factor refers to the pre-Summit to post-Summit differences.

Insert Tables 4 and 5 about here

Results

Description of likelihood estimates. Mean percentage estimates and their standard deviations for Time 1 and Time 2 are presented in Table 4 and shown in Figure 1. Overall, results show increasing estimates of nuclear war as time intervals increase. The average estimate of nuclear war vary from approximately 2-3% for "the next week" to approximately 60% for there "ever" being a nuclear war. As shown in Figure 1, the likelihood estimates increase sharply up to 5 years and tend to increase less dramatically thereafter.

Reagan-Gorbachev Summit. The multivariate F-test of the pre-Summit to post-Summit differences was significant, $F(8,81) = 3.05$, $p = .005$, indicating that there was a change in likelihood estimates pre-Summit to post-Summit. Inspection of the pre-Summit to post-Summit differences at eight time frames showed significantly different estimates at one week ($F(1,88) = 4.71$, $p < .03$), one month ($F(1,88) = 6.89$, $p < .01$), and one year ($F(1,88) = 11.05$, $p < .01$) with higher estimates at post-Summit. Estimates at 10 years, 25 years, and lifetime, however, were lower at post-Summit with a significant difference for the 25 year estimate ($F(1,88) = 7.71$, $p < .01$).

Insert Figure 1 about here

Sex differences. Mean likelihood estimates for women and men are reported in Table 5. While the multivariate F-test for sex differences indicated that women and men do not differ significantly in their estimates of the likelihood of nuclear war, $F(8,81) = 1.07$, $p = .39$, examination of the univariate and step-down F statistics do reveal trends worth noting. The univariate F-values increase as the time frame increases, showing that women

estimate nuclear war as significantly ($p < .05$) more likely than do men for 10 years ($F = 3.90$), 25 years ($F = 5.58$), lifetime ($F = 6.80$), and ever ($F = 5.75$). The step-down F statistic indicates that the major widening between men's and women's mean scores occurs at the 5-year time point. No significant differences were found when subjects were grouped by age. Finally, there were no significant interaction effects of sex by time ($F(8,81) = .61$, $p = .77$).

Discussion

The Nuclear Locus of Control (NLOC) appears to be a promising instrument for assessing beliefs as to whether nuclear war and nuclear policy decisions are, or can be, influenced by oneself, powerful others, or chance. The internal consistency and test-retest reliability of the NLOC are sufficient for research purposes. In general, the NLOC scales show expected relationships with Levenson's generalized measure of locus of control and with Wallston, Wallston, and DeVellis' Multidimensional Health Locus of Control Scales. The larger than expected negative relationships between the NLOC internal and powerful others scales previously reported (Erdahl & Rounds, 1986) were not found in the present study. We believe that this result is due to the development of NLOC powerful other items that do not contain personal referents.

Preliminary evidence of the construct validity of the NLOC scales was provided by the relationships of these scales with measures of behavioral intentions and past behaviors. As expected, the NLOC internal scale had substantial positive relationships, while the NLOC chance scale had negative

relationships, with measures of anti-nuclear intentions, activism intentions, past anti-nuclear behaviors, and past activism behaviors.

Consistent with previous findings (Erdahl & Rounds, 1986), the Internal Nuclear Locus of Control scale did not correlate significantly with Levenson's Internal scale. Expected correlations do exist, however, between the NLOC internal scale and the Internal Health Locus of Control scale, providing evidence of convergent validity. These findings suggest that the concept of general internal locus of control, as measured by Levenson's IPC, may not apply to beliefs about nuclear war and nuclear policy decisions. Beliefs of control over nuclear war and nuclear policies seem to be qualitatively different from and independent of beliefs of control over daily experiences as measured by Levensons internality scale, e.g. "how many friends I have," "making my plans work," and "protecting my personal interests." This suggests that beliefs of influence on mediating factors, such as political processes, are independent of beliefs of influence over one's personal world. Further research is needed to clarify the relationship between personal and public internal locus of control.

The findings in Study 2 show that estimates of the likelihood of nuclear war changed significantly when assessed three weeks after the Reagan-Gorbachev Summit. There was a increase in likelihood estimates for the immediate (next week, next month) and near (next year, five years) future, while estimates decreased for the foreseeable (10 years, 25 years) and distant (lifetime, ever) future. The resondents estimates are not incongruent with the general media view (e.g. Thomas, 1985) that the Summit had little or no substantial

effects on the current arms race, but that the meeting between Reagan and Gorbachev did hold promise for future progress on arms control agreements.

Although the overall multivariate test for sex differences was not significant, a trend was found in which mean differences were small for the shorter time frames (1 week, 1 month, and 1 year), but larger for the longer time frames (5 years, 10 years, 25 years, lifetime, and ever), with women estimating nuclear war as more likely than did men for the longer time frames. The finding that women think nuclear war is more likely than men do at 10 years and beyond was not anticipated. These results may suggest tendencies for women to be more worried or more concerned about nuclear war than men, a finding that is consistent with previous work (White and Feshbach, 1984; Hamilton et al., 1985).

In summary, the Nuclear Locus of Control scales and the Nuclear Likelihood Questionnaire may be useful in efforts to predict behavioral responses to the threat of nuclear war. Further research is, clearly, necessary.

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Table 1

Nuclear Locus of Control (NLOC) Scales

Internal Nuclear Locus of Control (NLOC)

1. By active participation in the appropriate organizations, I can do a lot to reduce the chances of nuclear war. (-.66)

4. Through political actions, I could influence the possibility of a nuclear war occurring. (-.60)

6. If I put my mind to it, I could have an influence on U.S. nuclear policy decisions. (-.77)

9. Whether or not there is a nuclear war depends somewhat on my own actions. (-.61)

13. By efforts on my part, I can have an effect on U.S. policies involving the number and types of nuclear weapons. (-.63)

16. I am somewhat responsible for the threat of nuclear war. (-.48)

Powerful Others Nuclear Locus of Control (PNLOC)

2. This country is run by a few people in power and only they can influence U.S. nuclear policy decisions. (.46)

5. Powerful people in our society will influence the increase or decrease in the number of U.S. nuclear weapons. (.55)

8. Whether or not there is a nuclear war is completely determined by other powerful people. (.53)

11. Other powerful people determine U.S. nuclear policy decisions. (.70)

14. I feel that only a few powerful people have any important influence over whether or not there is a nuclear war. (.67)

17. Other people influence increases or decreases in the number of U.S. nuclear weapons. (.52)

Note. In parentheses are factor loadings.

(table continues)

Table 1

Chance Nuclear Locus of Control (NLOC)

3. It's chiefly a matter of fate, whether or not there will be a nuclear war. (.80)

7. The occurrence of nuclear war in my life would simply be due to bad luck. (.67)

10. Whether or not the number of U.S. nuclear weapons are increased or decreased is a matter of fate. (.76)

12. If I live the rest of my life and there isn't a nuclear war, it is because I am lucky. (.61)

16. It seems that the likelihood of nuclear war is greatly influenced by accidental happenings. (.50)

18. Chance will decide if there is a nuclear war or not. (.67)

Note. In parentheses are factor loadings.

Table 2

Intercorrelations of Nuclear Locus of Control, Multidimensional Health Locus of Control, and IPC Scales

	INLOC	PNLOC	CNLOC	IHLC	PHLC	CHLC	I	P	C	M	SD
Nuclear (n = 79)											
Internal	(.87)									19.58	5.69
Powerful others	-.40**	(.76)								23.00	4.69
Chance	-.35**	.29**	(.85)							14.34	5.77
Health (N = 79)											
Internal	.27**	.00	-.05	(.73)						27.14	3.82
Powerful others	.00	.16	.13	-.12	(.68)					14.49	4.09
Chance	-.39**	.30**	.47**	-.37**	.18	(.64)				15.92	4.09
General (N = 27)											
Internal	-.12	.04	.11	---	---	---	(.78)			36.44	4.93
Powerful others	-.03	.27	.28	---	---	---	-.31	(.72)		22.00	5.07
Chance	-.25	.06	.46**	---	---	---	-.26	.56**	(.83)	21.25	5.82

Note. Alpha coefficients in main diagonal. * $p < .05$. ** $p < .01$

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Table 3

Correlation of Nuclear Locus of Control Scales with Likelihood Estimates, Behavioral Intentions Scales and Past Behavior Scales

	Nuclear Locus of Control		
Variable	Internal	Powerful others	Chance
Likelihood estimate (N = 77)			
Immediate future	-.13	.07	.17
Foreseeable future	-.04	.05	.16
Distant future	-.03	-.02	.09
Intentions (N = 77)			
Anti-nuclear	.45**	-.01	-.24*
Pro-nuclear	-.03	-.20*	.01
Bipolar activism	.36**	.07	-.18
Activism	.49**	-.12	-.26*
Past behavior (N = 35)			
Anti-nuclear acts	.39**	-.04	-.19
Pro-nuclear acts	-.29	-.25	-.12
Bipolar activism	.42**	.07	-.09
Intensity	.26	-.19	-.28*

*p .05. ** p .01

Table 4

Means and Standard Deviations for the Likelihood Items by Time

Likelihood item	Time 1		Time 2	
	M	SD	M	SD
In the next...				
Week	1.79	6.43	3.06	10.45
Month	2.48	6.04	4.29	11.24
Year	5.17	7.67	7.33	12.04
5 years	14.10	12.71	14.36	16.10
10 years	23.66	18.85	22.83	20.43
25 years	37.72	25.39	32.23	24.88
Lifetime	44.13	29.93	42.02	30.30
Ever	59.47	34.39	60.46	35.18

Note. Mean estimates are in percentages.

Table 5

Means and Standard Deviations for Likelihood Estimates of Men and Women

In the next...	Men	Women
Week	2.59	2.29
	(7.72)	(7.33)
Month	3.28	3.47
	(8.12)	(7.46)
Year	5.90	6.54
	(9.[illegible])	(8.42)
5 years	12.[illegible]	15.96
	(13.[illegible])	(12.54)
10 years	19.3	26.54
	(19.0[illegible])	(17.92)
25 years	29.42	39.63
	(25.67)	(20.91)
Lifetime	35.66	49.29
	(29.65)	(49.29)
Ever	52.18	66.47
	(35.64)	(66.47)

Note. N=90, men=41, women=49. Standard deviations in parentheses.

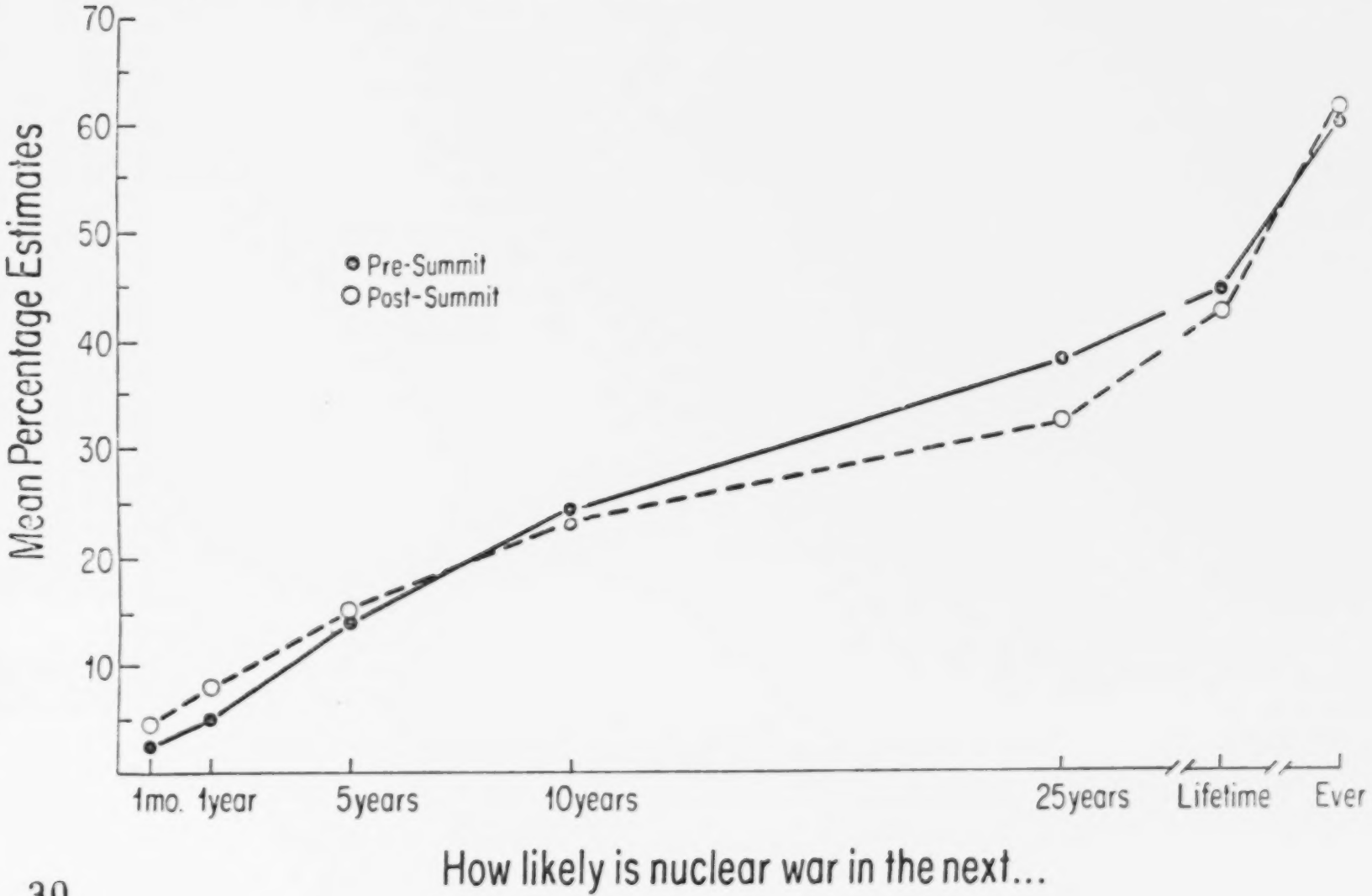
Estimates of the Likelihood of Nuclear War Before and After the November 1985 Reagan-Gorbachev Summit Talks
Mean Percentage Estimates
70
60
50
40
30
20
10
Pre-Summit
Post-Summit
1mo.
1year
5years
10years
25years
Lifetime
Ever
How likely is nuclear war in the next...

Figure 1

Appendix A

The Nuclear Likelihood Questionnaire (NLQ)

This is a measure of how likely you think nuclear war is in the future.

You are being asked to estimate the chances that nuclear war will occur in the time periods listed below. For each time period, please estimate, in percentages, how likely it is that nuclear war will occur. Use percentages from 0% to 100%, where 0% means that you believe there is no chance that nuclear war will occur, and 100% means that you are certain that nuclear war will occur during this time.

For example, if you think that nuclear war is very likely in the next 5 years you might answer 80%. Or if you think that nuclear war is very unlikely in the next 5 years you might answer 10%.

How likely is it that nuclear war will occur:

1. _____% in the next week.
2. _____% in the next month.
3. _____% in the next year.
4. _____% in the next 5 years.
5. _____% in the next 10 years.
6. _____% in the next 25 years.
7. _____% in your lifetime.
8. _____% ever (beyond your lifetime).